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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
LIN, PHYOWAI	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/803,875	**Applicant(s)** SAKAI ET AL.	
	Examiner PHYOWAI LIN	**Art Unit** 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5 and 7-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5 and 7-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1,3-5,7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerstel (US Patent Number 7099578) in view of Miyata et al. (US Pub Number 2003/0123775) and Desantis (US Patent Number 4858225).

Regarding to claim 1, Gerstel discloses an optical transmission device (see FIG.3), comprising:

a WDM port as a port for transmission and reception of a wavelength-multiplexed signal (column 11,lines 41-48 and FIG.3 where in the MUX/DEMUX 34 does the function of transmitting and receiving of WDM signal through out WDM device) ; and

Even though Gerstel discloses the function of MUX/DEMUX for transmitting and receiving through the transmission line, Gerstel fails to specifically disclose wavelength multiplex/demultiplex unit has plurality of optical filters with their functions.

Miyata et al. disclose wherein said wavelength multiplex/demultiplex unit comprises a plurality of optical filters which are provided in correspondence with a plurality of wavelengths, are daisy-chain connected (see [0032], lines 1-5;FIG.1 and FIG.3), and have a loss characteristic weighted at the plurality of wavelengths in

correspondence with said wavelength-dependent loss characteristic (see [0039]; [0040] lines 1-6; [0042] lines 1-4 and FIG.3), and

Desantis disclose plurality of optical filters has a function of a band-pass filter and an identical insertion loss (see column 9,lines 35-36 and FIG.5c where in optical filters of band-pass type can have identical insertion loss).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical filter with band-pass filter function in optical transmission device for limiting the bandwidth to minimum necessary because it would allow the transmission device having desired bandwidth for conveying data at the desired speed and in the desired form to make reliable communication.

Regarding to claim 3, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 1). In addition, Miyata et al. disclose the optical transmission device further includes: wherein when a curve of said wavelength-dependent loss characteristic has an extreme value and shows decrease in loss with increase in wavelength in a first wavelength range in which the gradient of the curve is negative (see FIG.4A where in on the left side of straight line shows the negative broken line curve as decrease in loss with increase in wavelength in a first wavelength range) and increase in loss with increase in wavelength in a second wavelength range in which the gradient of the curve is positive (see FIG.4A where in on the right side of straight line shows the positive broken line curve as increase in loss with increase in wavelength in a first wavelength range),

said plurality of optical filters are arranged in such a manner that signals to be demultiplexed first pass through ones of said plurality of optical filters corresponding to wavelengths in one of said first and second wavelength ranges in decreasing order of said wavelength-dependent loss characteristic (see [0044] lines 3-6;[0046]; FIG.3 and FIG.4A where in optical filters 28(#1) and 28(#2) are arranged in cascaded way and input signal (#1) from optical filter 28(#1) is demultiplexed into 49(#1) and 48 (#1) and after weighting in correction circuit 34(#1),first wavelength range as negative curve shows decreasing order of wavelength dependent loss characteristic) and then through other ones of said plurality of optical filters corresponding to wavelengths in another of said first and second wavelength ranges in decreasing order of said wavelength-dependent loss characteristic (see [0044] lines 3-6;[0046]; FIG.3 and FIG.4A where in optical filters 28(#1) and 28(#2) are arranged in cascaded way and input signal (#2) from optical filter 28(#2) is demultiplexed into 49(#2) and 48 (#2) and after weighting in correction circuit 34(#2),first wavelength range as negative curve shows decreasing order of wavelength dependent loss characteristic).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical filter with band-pass filter function in optical transmission device for limiting the bandwidth to minimum necessary because it would allow the transmission device having desired bandwidth for conveying data at the desired speed and in the desired form to make reliable communication.

Regarding to claim 4, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 1). In addition, both Gerstel and Miyata et al. disclose wherein said wavelength multiplex/demultiplex unit (see FIG.3 of Gerstel) further comprises an optical filter through which separation or insertion of a signal for maintenance control is performed (see FIG.3 of Miyata et al. where in the input signal is inserted and separated through an optical filter).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical filter with band-pass filter function in optical transmission device for limiting the bandwidth to minimum necessary because it would allow the transmission device having desired bandwidth for conveying data at the desired speed and in the desired form to make reliable communication.

Regarding to claim 5, Gerstel discloses an optical transmission system, comprising:

an optical transmission line (the transmission link L4-see column 11, line 44) as a transmission medium of a wavelength-multiplexed signal (see column 11, lines 41-44);

a first optical transmission device (see FIG.3 node 1') being connected to an end of said optical transmission line (the transmission link L4-see column 11, line 44), and comprising a first wavelength multiplex/demultiplex unit (MUX/DEMUX 34-see column 11,line 41);

a second optical transmission device (see FIG.3 node 2') being connected to another end of said optical transmission line (the transmission link L4-see column 11, line 44), and comprising a second wavelength multiplex/demultiplex unit (MUX/DEMUX 34'-see column 11,line 49);

Even though Gerstel discloses first and second optical transmission device with a first and second wavelength mux/demux units through the transmission line, Gerstel fails to specifically disclose wavelength multiplex/demultiplex unit has plurality of optical filters with their functions.

Miyata et al. disclose wherein said wavelength multiplex/demultiplex unit comprises a plurality of optical filters which are provided in correspondence with a plurality of wavelengths, are daisy-chain connected (see [0032], lines 1-5;FIG.1 and FIG.3), and have a loss characteristic weighted at the plurality of wavelengths in correspondence with said wavelength-dependent loss characteristic (see [0039]; [0040] lines 1-6; [0042] lines 1-4 and FIG.3), and

Desantis disclose plurality of optical filters has a function of a band-pass filter and an identical insertion loss (see column 9,lines 35-36 and FIG.5c where in optical filters of band-pass type can have identical insertion loss).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical filter with band-pass filter function in first and second optical transmission device for limiting the bandwidth to minimum necessary because it would allow the transmission device

having desired bandwidth for conveying data at the desired speed and in the desired form to make reliable communication.

Regarding to claim 7, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 5). In addition, Miyata et al. disclose the optical transmission device further includes: wherein when a curve of said wavelength-dependent loss characteristic has an extreme value and shows decrease in loss with increase in wavelength in a first wavelength range in which the gradient of the curve is negative (see FIG.4A where in on the left side of straight line shows the negative broken line curve as decrease in loss with increase in wavelength in a first wavelength range) and increase in loss with increase in wavelength in a second wavelength range in which the gradient of the curve is positive (see FIG.4A where in on the right side of straight line shows the positive broken line curve as increase in loss with increase in wavelength in a first wavelength range),

said plurality of optical filters in each of said first and second wavelength multiplex/demultiplex units are arranged in such a manner that signals to be demultiplexed first pass through ones of said plurality of optical filters corresponding to wavelengths in one of said first and second wavelength ranges in decreasing order of said wavelength-dependent loss characteristic (see [0044] lines 3-6;[0046]; FIG.3 and FIG.4A where in optical filters 28(#1) and 28(#2) are arranged in cascaded way and input signal (#1) from optical filter 28(#1) is demultiplexed into 49(#1) and 48 (#1) and after weighting in correction circuit 34(#1),first wavelength range as negative curve shows decreasing order of wavelength dependent loss characteristic) and then through

other ones of said plurality of optical filters corresponding to wavelengths in another of said first and second wavelength ranges in decreasing order of said wavelength-dependent loss characteristic (see [0044] lines 3-6;[0046]; FIG.3 and FIG.4A where in optical filters 28(#1) and 28(#2) are arranged in cascaded way and input signal (#2) from optical filter 28(#2) is demultiplexed into 49(#2) and 48 (#2) and after weighting in correction circuit 34(#2),first wavelength range as negative curve shows decreasing order of wavelength dependent loss characteristic).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical filter with band-pass filter function in first and second optical transmission devices with first and second wavelength multiplex/demultiplex units for limiting the bandwidth to minimum necessary because it would allow the transmission device having desired bandwidth for conveying data at the desired speed and in the desired form to make reliable communication.

Regarding to claim 8, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 1). In addition, both Gerstel and Miyata et al. disclose wherein said first and second wavelength multiplex/demultiplex unit (see FIG.3 of Gerstel) further comprises an optical filter through which separation or insertion of a signal for maintenance control is performed (see FIG.3 of Miyata et al. where in the input signal is inserted and separated through an optical filter).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical filter with

band-pass filter function in first and second optical transmission devices with first and second wavelength multiplex/demultiplex units for limiting the bandwidth to minimum necessary because it would allow the transmission device having desired bandwidth for conveying data at the desired speed and in the desired form to make reliable communication.

3. **Claims 9-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerstel (US Patent Number 7099578) in view of Miyata et al. (US Pub Number 2003/0123775) and Desantis (US Patent Number 4858225) as applied to claim 5, respectively, above and further in view of Kai et al. (US Patent Number 6462844).

Regarding to claim 9, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 5). In addition, Gerstel disclose the optical transmission system (see FIG.3) wherein when said first wavelength multiplex/demultiplex unit performs wavelength multiplexing (see column 11,line 41-48); and

said second wavelength multiplex/demultiplex unit performs wavelength demultiplexing (see column 11,line 48-5); and

Even though Gerstel discloses the first and second wavelength multiplex/demultiplex unit in optical transmission system, Gerstel fails to specifically disclose the optical equalizing filter for compensating transmission loss.

Kai et al. disclose each of said first and second wavelength multiplex/demultiplex units has a loss characteristic which compensates for half of said wavelength-dependent loss characteristic so that differences among different channels in loss

caused by transmission of a wavelength-multiplexed signal are suppressed, and loss levels in the different channels in the wavelength-multiplexed signal are equalized (see column 10, lines 61-64; column 10, lines 4-7; column 11, lines 66 through column 12, lines 1-7; column 15, lines 15-20; FIG.1 and FIG.15 where in optical device has multiplex and demultiplex which compensate wavelength-dependent loss of transmission line in half and half function by using optical equalizing filter EQ on each side of the optical device.)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical equalizing filter on both side of the optical device for covering up transmitting error caused by during transmission period because this would allow to make the transmission system for cost effective as two small equalizing filter are cheaper than one large filter as same result and more reliable communication.

Regarding to claim 10, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 5). In addition, Gerstel disclose the optical transmission system (see FIG.3) wherein when said first wavelength multiplex/demultiplex unit performs wavelength multiplexing (see column 11,line 41-48) and,

said second wavelength multiplex/demultiplex unit performs wavelength demultiplexing (see column 11,line 48-56);

Even though Gerstel discloses the first and second wavelength multiplex/demultiplex unit in optical transmission system, Gerstel fails to specifically disclose the optical equalizing filter for compensating transmission loss.

Kai et al disclose said first wavelength multiplex/demultiplex unit has a first loss characteristic which compensates for a first wavelength-dependent loss characteristic of a first section of the optical transmission line between said first optical transmission device and a midpoint of the optical transmission line, and said second wavelength multiplex/demultiplex unit has a second loss characteristic which compensates for a second wavelength-dependent loss characteristic of a second section of the optical transmission line between said midpoint and said second optical transmission device, so that differences among different channels in loss caused by transmission of a wavelength-multiplexed signal are suppressed, and loss levels in the different channels in the wavelength-multiplexed signal are equalized (see column 10, lines 61-64; column 10, lines 4-7; column 11, lines 66 through column 12, lines 1-7; column 15, lines 15-20; FIG.1 and FIG.15 where in optical device has multiplex and demultiplex which compensate wavelength-dependent loss of transmission line from each end side of multiplex and demultiplex to the middle of transmission line by using optical equalizing filter EQ on each side of the optical device.)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical equalizing filter on both side of the optical device for covering up transmitting error caused by

during transmission period because this would allow to make the transmission system for cost effective as two small equalizing filter are cheaper than one large filter as same result and more reliable communication.

Regarding to claim 11, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 5). In addition, Gerstel disclose the optical transmission system (see FIG.3) wherein when said first wavelength multiplex/demultiplex unit performs wavelength multiplexing (see column 11,line 41-48), and

said second wavelength multiplex/demultiplex unit performs wavelength demultiplexing (see column 11,line 48-56);

Even though Gerstel discloses the first and second wavelength multiplex/demultiplex unit in optical transmission system, Gerstel fails to specifically disclose the optical equalizing filter for compensating transmission loss.

Kai et al disclose said first wavelength multiplex/demultiplex unit has a loss characteristic which compensates for said wavelength-dependent loss characteristic of the optical transmission line, and said second wavelength multiplex/demultiplex unit has a flat loss characteristic which shows identical loss levels at all wavelengths used in transmission, so that differences among different channels in loss caused by transmission of a wavelength-multiplexed signal are suppressed, and loss levels in the different channels in the wavelength-multiplexed signal are equalized (see column 10, lines 61-64; column 10, lines 4-7; column 11, lines 66 through column 12, lines 1-7; column 15, lines 15-20; FIG.1 and FIG.15 where in optical device has multiplex and

demultiplex which compensate wavelength-dependent loss of transmission line by using optical equalizing filter EQ on each side of the optical device which has function of compensating (flattening) loss).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical equalizing filter on both side of the optical device for covering up transmitting error caused by during transmission period because this would allow to make the transmission system for cost effective as two small equalizing filter are cheaper than one large filter as same result and more reliable communication.

Regarding to claim 12, Gerstel, Miyata et al. and Desantis disclose everything claimed as applied above (see claim 5). In addition, Gerstel disclose the optical transmission system (see FIG.3) wherein when said first wavelength multiplex/demultiplex unit performs wavelength multiplexing (see column 11,line 41-48), and

said second wavelength multiplex/demultiplex unit performs wavelength demultiplexing (see column 11,line 48-56);

Even though Gerstel discloses the first and second wavelength multiplex/demultiplex unit in optical transmission system, Gerstel fails to specifically disclose the optical equalizing filter for compensating transmission loss.

Kai et al disclose said first wavelength multiplex/demultiplex unit has a flat loss characteristic which shows identical loss levels at all wavelengths used in transmission, and said second wavelength multiplex/demultiplex unit has a loss characteristic which

compensates for said wavelength-dependent loss characteristic of the optical transmission line, so that differences among different channels in loss caused by transmission of a wavelength-multiplexed signal are suppressed, and loss levels in the different channels in the wavelength-multiplexed signal are equalized (see column 10, lines 61-64; column 10, lines 4-7; column 11, lines 66 through column 12, lines 1-7; column 15, lines 15-20; FIG.1 and FIG.15 where in optical device has multiplex and demultiplex which compensate wavelength-dependent loss of transmission line by using optical equalizing filter EQ on each side of the optical device which has function of compensating (flattening) loss).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Gerstel's invention by using optical equalizing filter on both side of the optical device for covering up transmitting error caused by during transmission period because this would allow to make the transmission system for cost effective as two small equalizing filter are cheaper than one large filter as same result and more reliable communication.

Response to Arguments

4. Applicant's argument with respect to claims 1,3-5,7-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYOWAI LIN whose telephone number is (571) 270-1659. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PWL

09/26/07

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KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER